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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/801,526   | 03/17/2004  | Yung-Hsin Chen       | 3313-1136P          | 2292             |
| 2292   | 7590        | 08/08/2005           | EXAMINER            |                  |
| BIRCH STEWART KOLASCH & BIRCH<br>PO BOX 747<br>FALLS CHURCH, VA 22040-0747 |             |                      | ASSAF, FAYEZ G      |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2872                |                  |

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/801,526

Applicant(s)

CHEN ET AL.

Examiner

Fayez G. Assaf

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-14 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-14 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2872

**DETAILED ACTION**

***Election/Restrictions***

This application contains claims directed to the following patentably distinct species of the claimed invention:

Species 1: apparatus for forming a nano grating device: claims 1-5 and 7.

Species 2: apparatus for forming a nano grating device wherein the substrate is directly in contact with the flat surface of the hemi-sphere lens.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which

Art Unit: 2872

are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must

Art Unit: 2872

be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Newly submitted claim 8 is directed to an invention that is independent or distinct from the invention originally claimed.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 8 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hobbs et al. (US 6,185,019 B1).

Art Unit: 2872

Hobbs discloses an apparatus for forming a nano grating device (line 1 of Col. 4), comprising: a light source, used to emit a first beam (12 of Fig. 1); a beam splitter, mounted on one side of the light source to split the first beam emitted from the light source into two second beams (14 of Fig. 1); two reflectors (16 and 18 of Fig. 1), mounted on the other side of the splitter opposite to the light source to respectively receive the second beams generated by the light splitter and then reflect a third beam; two light emitting modules (20 and 22 of Fig. 1), mounted on the other side of the reflectors opposite to the light splitter to respectively receive the third beams from the reflectors and generate a fourth beam; and a prism, having a flat surface and being mounted on the other side of the light emitting modules opposite to the reflectors, a photosensitive substrate (56 of Fig. 5) is attached onto the flat surface, and each of the fourth beam travels along the optical paths to reach the photosensitive substrate that is later exposed to form a grating structure (see Fig. 2a). Hobbs teaches a prism rather a hemi-sphere lens.

However, coupling the beams by means of semi-sphere lens is well known in such optical devices.

It would have been obvious, at the time the invention was made, to a person having ordinary skill in the art to utilize a

Art Unit: 2872

semi-spherical lens instead of the prism in order to achieve a sharper interference pattern.

Regarding claim 2, Hobbs discloses the light source being a laser (line 62 of Col. 4).

Regarding claim 4, one of ordinary skill in the art appreciates, from reading the description of the spatial filters of Fig. 1, that Hobbs appear to teach the light emitting modules respectively including an amplifying object lens, a filtering pinhole and a lens, the third beams pass subsequently through the amplifying object lens, a filter pinhole and the lens to respectively form a fourth beam.

Regarding claim 5, the device as modified teaches the two light emitting modules being symmetrically mounted at either sides of the hemi-sphere lens to allow the fourth beams to travel the same optical paths and then project on the photosensitive substrate (see Fig. 1).

Regarding claim 7, Hobbs discloses a movable platform (x-y translation stage of Fig. 10) to move the photosensitive substrate.

Regarding claim 3, Hobbs does not disclose the beam splitter being an optical fiber. However, such optical splitters are well known.

Art Unit: 2872

It would have been obvious, at the time the invention was made, to a person having ordinary skill in the art to utilize a fiber splitter because it is light weight and inexpensive.

***Response to Arguments***

Applicant's arguments filed 05/20/2005 have been fully considered but they are not persuasive.

Applicant has requested prior art references disclosing the hemi-sphere lens. The Examiner notes that such references have been provided and considered pertinent in the Office Action mailed 2/22/2005.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

***Allowable Subject Matter***



Art Unit: 2872

Claims 9-14 are allowed.

Claims 9-14 are allowable for the reasons claim 6 was indicated allowable in the Office Action mailed 2/22/2005.

### **Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fayez G. Assaf whose telephone number is (571) 272-2307. The examiner can normally be reached on 8-5 M-F.

Art Unit: 2872

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fayez G. Assaf  
Primary Examiner  
Art Unit 2872

8/6/2005